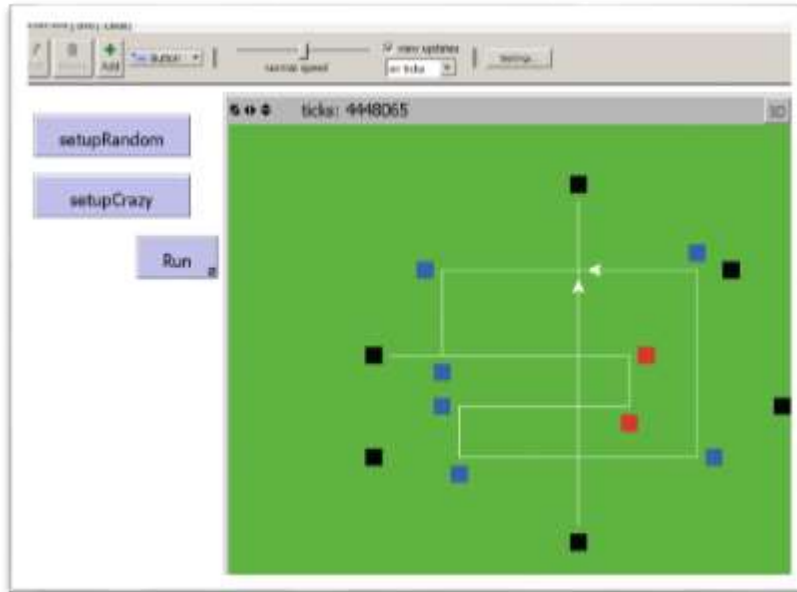


CS108L Computer Science for All Module 5: Bumper Turtles



The Bumper Turtles model created in this lab requires the use of *Boolean logic* and *conditional control flow*. The basic rules are:

- 1) Each turtle starts in the middle of a random patch.
- 2) At each tick, every turtle looks ahead one patch in its current heading.
 - a. If the patch ahead is black then the turtle makes a U-Turn.
 - b. If the patch ahead is blue, then the turtle makes a 90° left turn.
 - c. If the patch ahead is red, then the turtle makes a 90° right turn.
 - d. If the patch ahead is green, there are two options available: if there is another turtle in that patch then the turtle makes a U-Turn; otherwise, the turtle runs one step forward on the turf.

Settings:

Use the following settings for the interface:

- min-pxcor = -16, max-pxcor = 16, min-pycor = -16, max-pycor = 16

Setup Button:

Setup button must do the following:

- 1) Clear the world.
- 2) Set the world to all green. Set specified patches to black, blue, and red.



- 3) Create a track that is colored white (see above image for example)
- 4) Create at least 2 turtles each with a specific location and heading so that someplace along the path or that will enter the path created in step (3).

Module 5: Bumper Turtles Grading Rubric (20 Points Total)		
Done	Points	Task
	1	A: <ul style="list-style-type: none"> • Submit a NetLogo source code with the file name: <i>M1.firstname.lastname.nlogo</i>. • The first few lines of your Code tab are comments including the following: <pre> ;Student's Name: ;School: ;Teacher's Name: ;Date: </pre>
	3	B: <ul style="list-style-type: none"> • The code in the code tab of your program is appropriately documented with "inline comments".
	2	C. <ul style="list-style-type: none"> • Complete all sections in the Info tab. See Coding Standards Guidelines for more information.
	1	D: <ul style="list-style-type: none"> • Your Setup button creates at least 2 turtles. Each turtle must have unique coordinates. • Every time the setup button is pressed, the turtles you create are always created in the same set of unique locations.
	4	E: <ul style="list-style-type: none"> • The Go button moves turtles along a path that loops.
	3	F: <ul style="list-style-type: none"> • There are at least a total of 10 black, red and/or blue patches that affect the path of the turtles.
	3	G: <ul style="list-style-type: none"> • Whenever one of your turtles turns from its path to avoid another turtle, it later returns to its path. Hint: add a black patch to cause the turtle to turn back around.
	3	H: <ul style="list-style-type: none"> • There is at least one patch where two different turtle paths cross.
	2	I: (Extra Credit) <ul style="list-style-type: none"> • All of your turtle movement works as required. • You have at least 5 turtles • Your turtle paths cross each other in at least 5 places



		<ul style="list-style-type: none">• There are at least 25 black, red and/or blue patches that affect the path of the turtles.
	2	J: (Extra Credit) <ul style="list-style-type: none">• Make the program in 3D (see “Bumper Turtles” video for details). You will need a separate netlogo file. Please name it <i>M5.firstname.lastname.3D.nlogo</i>.